Abstract

The package \texttt{crefthe} provides a command \texttt{\crefthe} parallel to \texttt{cleveref}'s \texttt{\cref} for handling definite articles properly (especially for the article contractions in some European languages).

\section{The motivation}

By default, with \texttt{cleveref}'s \texttt{\cref} to reference theorem-like environments, the names do not contain definite articles. While this might be acceptable for English, it is certainly not good enough for languages such as French, Italian, Portuguese, Spanish, etc. – in these cases there shall be grammatical errors and would give you a strong feeling that it is machine-generated.

However, even if we manually add the definite articles to the names, there would still be other problems. As an example, if we define the French names to be:

\begin{verbatim}
\crefname{theorem}{le théorème}{les théorèmes}
\crefname{proposition}{la proposition}{les propositions}
\end{verbatim}

then when one writes (which means “We can deduce this from …”)

\begin{verbatim}
On peut le déduire de \texttt{\cref{thm1,thm2,prop3}}.
\end{verbatim}

the result would be:

\begin{verbatim}
On peut le déduire de les théorèmes 1 et 2 et la proposition 3.
\end{verbatim}

which is wrong, as the correct result should be:

\begin{verbatim}
On peut le déduire des théorèmes 1 et 2 et de la proposition 3.
\end{verbatim}

\texttt{\cref} cannot handle such cases automatically — that is when \texttt{\crefthe} comes into play.

\section{The usage}

\subsection{How to load it?}

Simply load the package with:

\begin{verbatim}
\texttt{\usepackage{crefthe}}
\end{verbatim}
2.2 | How to use it?

Before everything, you need to define the names, which can be done with \crefthename. Its syntax is similar to \crefname, but now you can specify the definite articles, for example:

\crefthename{theorem}[le]{théorème}[les]{théorèmes}

Then you can use the command \crefthe as follows:

\crefthe\[\langle \text{prep} \rangle\]{\langle \text{labels} \rangle}

- This will pass the preposition \textit{\langle \text{prep} \rangle} to the definite articles that follows. Its behavior depends on the current language (for example, in Spanish, \textit{\langle \text{prep} \rangle} is passed only to the first definite article, while in French it is passed to everyone).

\crefthe-\[\langle \text{prep} \rangle\]{\langle \text{labels} \rangle} and \crefthe+\[\langle \text{prep} \rangle\]{\langle \text{labels} \rangle}

- In case the automatic version does not meet your needs, here are two manual ones. The - version passes the preposition \textit{\langle \text{prep} \rangle} only to the first definite article, while the + version passes \textit{\langle \text{prep} \rangle} to every definite article.

\Tip
- There is also a stared version \crefthe* for generating the same referencing text without creating hyperlinks.
- The name-only relatives are also available: \namecrefthe and \namecrefsthe.

\Example

Let us come back to the example at the beginning, now you can do this:

\crefthename{theorem}[le]{théorème}[les]{théorèmes}
\crefthename{proposition}[la]{proposition}[les]{propositions}

And the sentence shall be written as:

On peut le déduire \crefthe\[\text{de}\]{thm1,thm2,prop3}.

which would result in (provided that you have done \selectlanguage{french}):

On peut le déduire des théorèmes 1 et 2 et de la proposition 3.

Voilà!
Regarding the upper and lower cases

As in cleveref, these commands have corresponding uppersed version: \Crefthename, \Crefthe, \nameCrefthe and \nameCrefs, similar to \Crefname, \Cref and \nameCref, reserved for using at the beginning of a sentence. \Crefthe (and the name-only relatives) can handle case changing automatically: for example, with \Crefthe \{thm1,thm2,prop3\}, you will get something like

\begin{center}
Aux théorèmes 1 et 2 et à la proposition 3
\end{center}

Of course you will have to define the \Crefthename separately, for example as:

\begin{verbatim}
\Crefthename{theorem}\{Le\}{théorème}\{Les\}{théorèmes}
\Crefthename{proposition}\{La\}{proposition}\{Les\}{propositions}
\end{verbatim}

For writing multi-language documents

To place hyperlinks at the correct place, \crefthename touches the corresponding format macro \crefformat internally, which makes the format language-dependent. If you are writing multi-language documents, you may consider putting \crefthename inside your language configuration so as to reset it each time you select a new language.

Dealing with existed cref / Cref names

For those preset names defined with \crefname / \Crefname, such as the ones for chapter, section and subsection, etc., the optional argument of \crefthe / \Crefthe shall be useless: names defined with \crefthename / \Crefthename have a \crefthemark marking the definite articles, which also deals with the given preposition; without \crefthemark, the preposition is simply ignored.

\crefthepatchname\{\counters\} is provided for this purpose. With this, an empty mark shall be added before the existed singular and plural names. However, it is still recommended to simply redefine the names with \crefthename / \Crefthename, especially in multilingual documents.

The relationship with cleveref

crefthe loads cleveref automatically and pass related options to it. All its commands, used without optional arguments, degenerate to those in cleveref. For example, \crefthe\{\ldots\} is the same as \cref\{\ldots\}, and \crefthename is the same as \crefname if the definite articles are not specified. That said, you can safely use the command \crefthe everywhere in your document without causing extra trouble.

With the package option overwrite, user commands in cleveref will be replaced by those offered here, thus you can simply write \cref for \crefthe – and similarly with \Cref, \crefname and \Crefname.
**Known issues**

- `crefthe` currently works for French, Italian, Portuguese (European and Brazilian) and Spanish, certainly more would be added to this list.
- The current mechanism does not work for German. The author plans to adopt a more refined approach in later versions in order to support the various situations in German. Meanwhile, you may consider the package `zref-clever`, which has a much more powerful and sophisticated interface for configuring cross referencing.
- The names of theorem-like environments are not provided here, you need to define them by yourself. However, users are encouraged to use the `ProjLib` toolkit (more specifically, the internal package `create-theorem`), which already handles everything for you.

If you run into any issues or have ideas for improvement, feel free to discuss on:

https://github.com/Jinwen-XU/crefthe/issues

or email me via ProjLib@outlook.com.